

CLAIMS

We claim:

1. An isolated polypeptide comprising residues 23 to 150 as shown in SEQ ID NO:2.
2. The isolated polypeptide of claim 1 wherein the polypeptide further comprises residues 1 to 150 as shown in SEQ ID NO:2.
3. An isolated polynucleotide comprising a sequence of nucleotides, wherein the sequence encodes the isolated polypeptide of claim 1.
4. An expression vector comprising the following operably linked elements:
 - a transcription promoter;
 - a DNA segment having the isolated polynucleotide of claim 3; and
 - a transcription terminator.
5. A cultured cell comprising the expression vector of claim 4.
6. A method of producing a polypeptide comprising culturing the cell of claim 5 under conditions whereby said sequence of nucleotides is expressed, and recovering said polypeptide.
7. A polypeptide produced by the method of claim 6.
8. An isolated polynucleotide comprising the polynucleotide sequence as shown in SEQ ID NO:1.
9. An antibody that specifically binds to the isolated protein of claim 1.
10. An isolated polypeptide comprising residues 19 to 117 as shown in SEQ ID NO:5.
11. The isolated polypeptide of claim 10 wherein the polypeptide further comprises residues 1 to 117 as shown in SEQ ID NO:5.

12. An isolated polynucleotide comprising a sequence of nucleotides, wherein the sequence encodes the isolated polypeptide of claim 10.

13. An expression vector comprising the following operably linked elements:

a transcription promoter;
a DNA segment having the isolated polynucleotide of claim 12; and
a transcription terminator.

14. A cultured cell comprising the expression vector of claim 13.

15. A method of producing a polypeptide comprising culturing the cell of claim 14 under conditions whereby said sequence of nucleotides is expressed, and recovering said polypeptide.

16. A polypeptide produced by the method of claim 15

17. An isolated polynucleotide comprising the polynucleotide sequence as shown in SEQ ID NO:4.

18. An antibody that specifically binds to the isolated protein of claim 10.

19. An isolated polypeptide comprising residues 20 to 185 as shown in SEQ ID NO:8.

20. The isolated polypeptide of claim 19 wherein the polypeptide further comprises residues 1 to 185 as shown in SEQ ID NO:8.

21. An isolated polynucleotide comprising a sequence of nucleotides, wherein the sequence encodes the isolated polypeptide of claim 19.

22. An expression vector comprising the following operably linked elements:

a transcription promoter;
a DNA segment having the isolated polynucleotide of claim 21; and
a transcription terminator.

23. A cultured cell comprising the expression vector of claim 22.
24. A method of producing a polypeptide comprising culturing the cell of claim 23 under conditions whereby said sequence of nucleotides is expressed, and recovering said polypeptide.
25. A polypeptide produced by the method of claim 24.
26. An isolated polynucleotide comprising the polynucleotide sequence as shown in SEQ ID NO:7.
27. An antibody that specifically binds to the isolated protein of claim 19.